

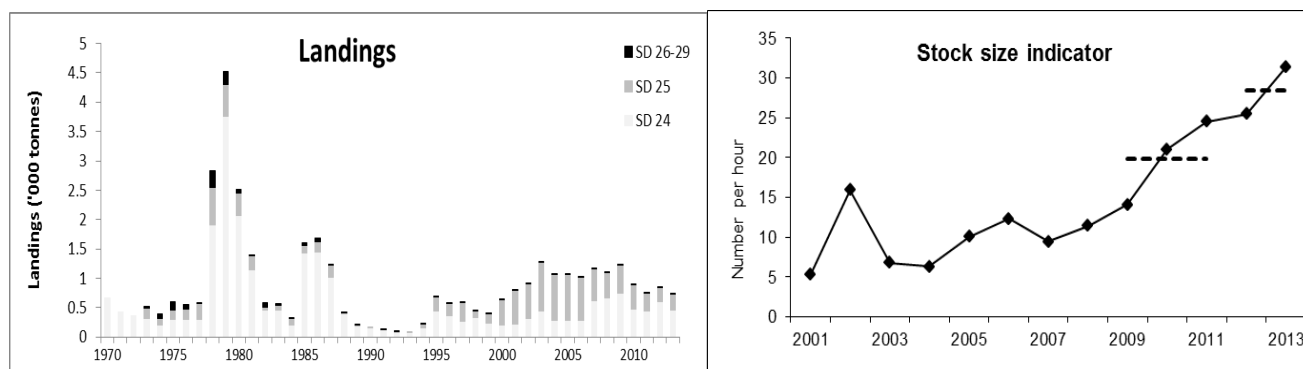
**ECOREGION** Baltic Sea  
**STOCK** Plaice in Subdivisions 24–32 (Baltic Sea)

**Advice for 2015**

ICES advises on the basis of the data-limited approach, but cannot quantify the resulting catches. The implied wanted catches<sup>1</sup> should be no more than 886 tonnes.

**Stock status**

Fishing pressure		
2011–2013		
MSY ( $F_{MSY}$ )	?	Unknown
Precautionary approach ( $F_{pa}, F_{lim}$ )	?	Unknown
Qualitative evaluation	↘	Decreasing
Stock size		
2012–2014		
MSY ( $B_{trigger}$ )	?	Unknown
Precautionary approach ( $B_{pa}, B_{lim}$ )	?	Unknown
Qualitative evaluation	↗	Increasing



**Figure 8.3.15.1** Plaice in Subdivisions 24–32 (Baltic Sea). Left panel: Official landings (Subdivisions 24–32, in thousand tonnes). Right panel: Combined 1st and 4th quarters cpue (number  $\times$  hr<sup>-1</sup>; weighted average per depth stratum area) of fish equal to or larger than 20 cm, from the Baltic International Trawl Survey (BITS–Q1+Q4) in Subdivisions 24–32 (from ICES DATRAS database). The dashed line indicates the average cpue of the respective year range.

The stock size indicator from surveys has increased steadily since the early 2000s about fivefold. The average stock size indicator in the last two years (2012–2013) is 43% higher than the abundance indices in the three previous years (2009–2011).

**Management plans**

No specific management objectives are known to ICES.

<sup>1</sup> “Wanted catch” is used to describe fish that would be landed in the absence of the EU landing obligation. The “unwanted catch” refers to the component that was previously discarded.

## Biology

Distribution of plaice in the Baltic Sea extends eastwards to the Gulf of Gdansk and northwards to the Gotland area, but it is also found sporadically farther north. The distribution of this species is dependent on salinity.

Based on information on biology and fishery of plaice ICES decided in 2012 that the plaice from Subdivisions 22 (the Belts) and 23 (the Sound), which were previously assumed to be part of the Baltic Sea stock, should be considered a separate stock unit together with Subdivision 21 (Kattegat). Plaice in the Subdivisions 24 to 32 was then considered to be one stock.

With respect to salinity requirements, opportunities for successful spawning of plaice exist regularly in the Arkona basin (Subdivision 24) and the Bornholm basin (Subdivision 25), but occasionally also in the Gdansk and Gotland basins (Subdivisions 26 and 28; Nissling *et al.*, 2002). Nursery areas are located in shallow waters down to 10 m depth.

Plaice spawn in February–March in the basins.

## The fisheries

Plaice is mainly caught in the area of Arkona and Bornholm basins (Subdivisions 24 and 25). ICES Subdivision 24 is the main fishing area, with Denmark and Germany being the main fishing countries. Subdivision 25 is the second most important fishing area. Denmark, Sweden, and Poland are the main fishing countries there. Minor catches occur in the rest of the eastern Baltic.

Plaice are caught by trawlers and gillnetters mostly. The minimum landing size is 25 cm. Active gears provide most of the landings in Subdivision 24 (ca. 65%) and Subdivision 25 (ca. 77%). In Subdivision 26, landings are low and passive gears provided 76% of the total plaice landings in 2012 and 2013.

**Catch distribution** Total catch (2013) is unknown. Official landings were 738 tonnes (mainly demersal trawl fishery). Discards are known to take place and are considered substantial but cannot be quantified.

## Quality considerations

Information on discards is limited and indicates that discarding is substantial, but the data are insufficient to estimate a discard proportion that could be applied to give catch advice.

The advice is based on a combined abundance index from two surveys, used as an indicator of stock size. The uncertainty associated with the index values is not available.

The methods applied to derive quantitative advice for data-limited stocks are expected to evolve as they are further developed and validated. The harvest control rules are expected to stabilize stock size, but they may not be suitable if the stock size is low and/or overfished.

## Scientific basis

<b>Stock data category</b>	3.2.0. ( <a href="#">ICES, 2014a</a> )
<b>Assessment type</b>	Survey trends.
<b>Input data</b>	Commercial landings and survey data from Baltic bottom trawl survey (BITS–Q1 and Q4).
<b>Discards and bycatch</b>	Discards are substantial but not considered in the advice.
<b>Indicators</b>	Commercial effort (STECF, 2013; ICES, 2014b).
<b>Other information</b>	This stock is planned to be benchmarked in 2015.
<b>Working group</b>	Baltic Fisheries Assessment Working Group ( <a href="#">WGBFAS</a> )

**ECOREGION**      **Baltic Sea**  
**STOCK**            **Plaice in Subdivisions 24–32 (Baltic Sea)**

**Reference points**

No reference points are defined for this stock.

**Outlook for 2013**

No reliable forecast can be presented for this stock, because the assessment is only indicative of trends.

*ICES approach to data-limited stocks*

In cases where an abundance index is available for data-limited stocks, ICES uses as harvest control rule an index-adjusted *status quo* catch. The advice is based on a comparison of the two most recent index values with the three preceding values, combined with recent catch or landings data. Knowledge about the exploitation status also influences the advised catch.

For this stock the abundance is estimated to have increased by more than 20% between the periods 2009–2011 (average of the three years) and 2012–2013 (average of the two years). This implies an increase of catches of at most 20% in relation to last year's (2013) catches, corresponding to wanted catch of no more than 886 t in 2015.

Additionally, the exploitation status is unknown but the effort in the main fisheries has decreased (STECF, 2013 – Figure 8.3.15.2; ICES, 2014b – Figure 8.3.15.3). Furthermore, the abundance has increased fivefold since 2003 (Figure 8.3.15.1); therefore, no additional precautionary reduction is needed.

Discards are known to be substantial, but data are insufficient to estimate a discard proportion that could be applied to give catch advice.

**Additional considerations**

*Management considerations*

Landings are mainly from bycatch in the cod fishery and in a mixed flatfish fishery. The TAC has not been restrictive overall; however, quotas have been fully taken by some nations.

Based on information on biology and fishery of plaice ICES decided that the plaice from Subdivisions 22 (the Belts) and 23 (the Sound), which were previously assumed to be part of the Baltic Sea stock, should be considered a separate stock unit together with Subdivision 21 (Kattegat) (ICES, 2012). Plaice in Subdivisions 24 to 32 was therefore considered to be one stock. Plaice in Subdivisions 21–23 are considered in Section 8.3.14.

*Comparison of the basis of previous assessment and advice*

The basis for the assessment has not changed from last year.

The basis for the advice this year is the same as last year: ICES approach to data-limited stocks.

**Assessment and management area**

The advice (Subdivisions 24–32) and the management (Subdivisions 22–32) areas are different.

**Sources**

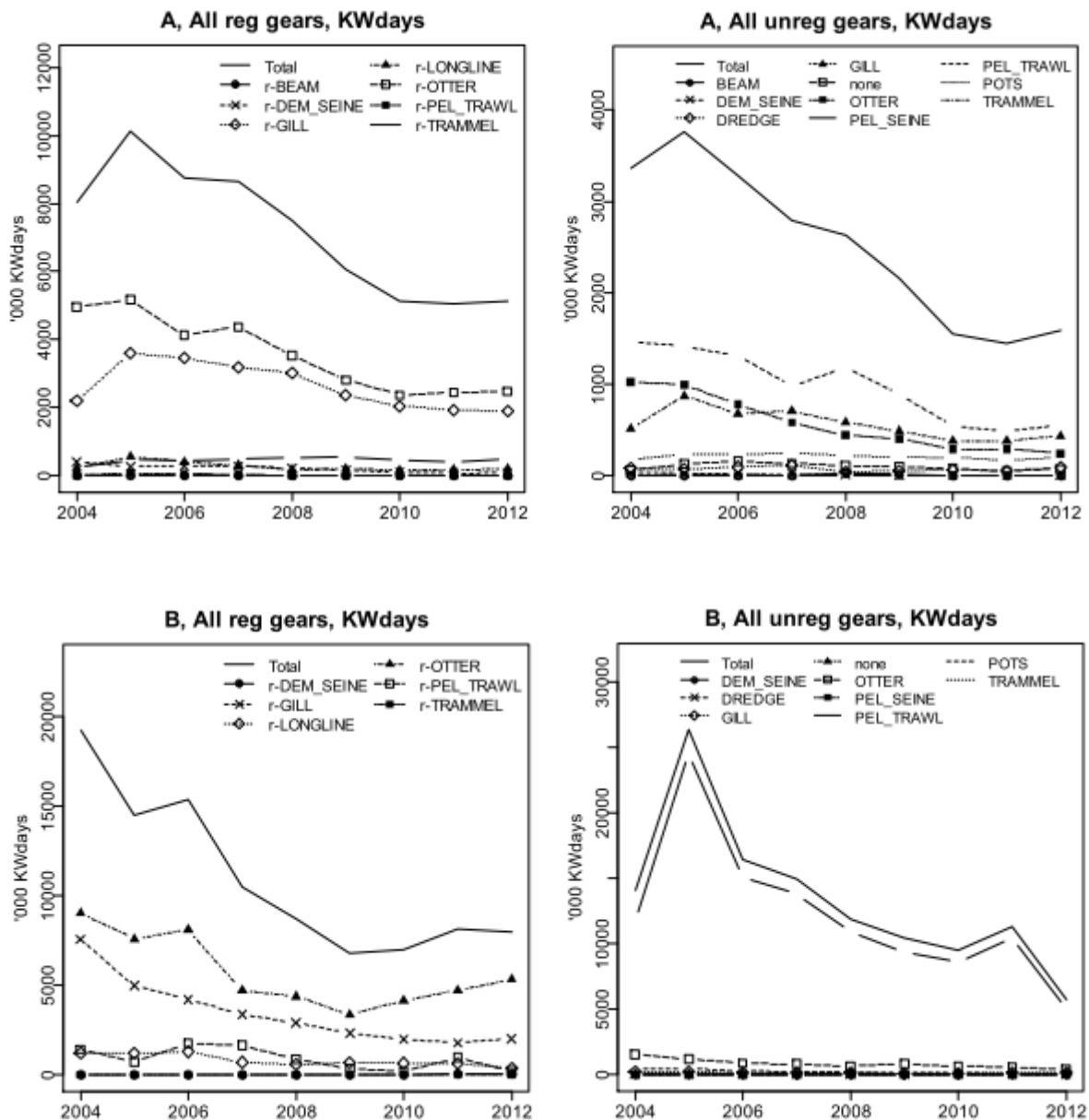
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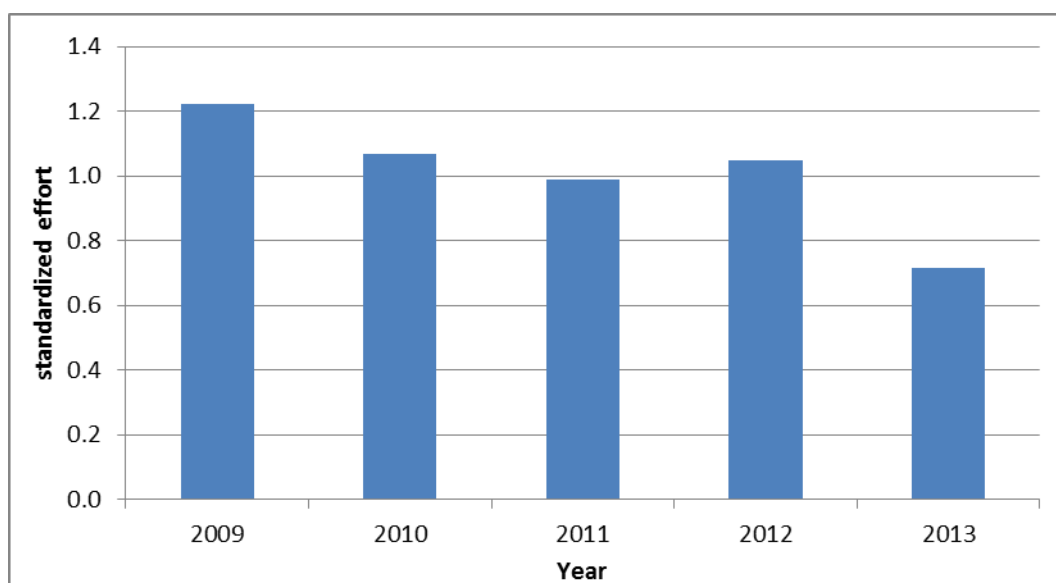
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**Figure 8.3.15.2** Plaice in Subdivisions 24–32 (Baltic Sea). Trend in nominal effort by gear types 2004–2012 (kW × days-at-sea). Left: Regulated gears. Right: Unregulated gears. Note that data from Poland, Latvia, and Lithuania are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2012. Additionally, Estonian data from 2005 to 2012 (including substantial pelagic effort) were included. No data were available from Finland. Upper panels: area A (Subdivisions 22–24); lower panels: area B (Subdivisions 25, 26, 27, and 28.2) (from STECF, 2013).



**Figure 8.3.15.3** Plaice in Subdivisions 24–32 (Baltic Sea). Standardized fishing effort weighted by the mean of cod landings by country. Includes only countries having plaice landings (Table 8.3.15.2).

**Table 8.3.15.1** Plaice in Subdivisions 24–32 (Baltic Sea). ICES advice, management, and official landings.

Year	ICES Advice	Predicted landings corresp. to advice <sup>a</sup>	Agreed TAC <sup>b</sup>	Official landings
2000	No advice	-	-	0.63
2001	No advice	-	-	0.79
2002	No advice	-	-	0.92
2003	No advice	-	-	1.28
2004	No advice	-	-	1.08
2005	No advice	-	-	1.08
2006	No advice	-	-	1.01
2007	No advice	-	-	1.17
2008	No advice	-	-	1.10
2009	No advice	-	-	1.23
2010	No advice	-	-	0.90
2011	No advice	-	3.041	0.75
2012	No increase in catches	-	2.889	0.85
2013	No more than 20% catch increase	≤ 0.9	3.409	0.74
2014	No more than 20% landings increase	≤ 1.0	3.409	
2015	No more than 20% wanted catches increase	≤ 0.886		

Weights in thousand tonnes.

<sup>a</sup> Before 2013 the advice was for Subdivisions 22–32.

<sup>b</sup> For Subdivisions 22–32.

**Table 8.3.15.2** Plaice in Subdivisions 24–32 (Baltic Sea). Total landings (tonnes) by ICES subdivision and country (in tonnes).

Year/SD	Denmark			Germ. Dem. Rep. <sup>a</sup>	Germany, FRG		Poland		Sweden <sup>b</sup>						Finland		
	24(+25)	25	26+27	24	24(+25)	28	25(+24)	26	24	25	26	27	28	29	24	25	26
1970	494					16			149								
1971	314					2			107								
1972	290					2			78								
1973	203			44	1		174	30	75								
1974	126			10	2		114	86	60								
1975	184			67	1		158	142	45								
1976	178			82	3		164	76	44								
1977	221			36	2		265	26	41								
1978	681			1 198	3		633	290	32								
1979	2 027			1 604	7		555	224	113								
1980	1 652			303	5		383	53	113								
1981	937			52	31		239	27	118								
1982	393			25	6		43	64	40	6		7	1				
1983	297			12	14		64	12	133	20		24	2				
1984	166			2	8		106		23	3		4	1				
1985	771			593	40		119	49	25	4		5	1				
1986	1 019			372	7		171	59	48	7		9	1				
1987	794			142	16		188	5	68	10		12	1				
1988	323			16	1		9	1	49	7		9	1				
1989	149			5			10		34	5		6	1				
1990	100			1	1		6		50								
1991	112				9		2	1	5	2		2					
1992	74				4		6		3	1		1					
1993	66				6		4		4								
1994	159						43	4	4	7							
1995	343				91	1	233	2	13	10		1					

<sup>a</sup> From October to December 1990 landings from Fed. Rep. of Germany are included.

<sup>b</sup> For the years 1970–1981 and 1990 the Swedish catches of Subdivisions 25–28 are included in Subdivision 24.

**Table 8.3.15.2(cont.)** Plaice in Subdivisions 24–32 (Baltic Sea). Total landings (tonnes) by ICES subdivision and country (in tonnes).

Year/SD	Denmark			Germ. Dem. Rep.	Germany, FRG		Poland		Sweden						Finland		
	24(+25)	25	26+27	24	24(+25)	28	25(+24)	26	24	25	26	27	28	29	24	25	26
1996	263				77		183	5	28	23	10	1					
1997	201				56		308	3	7	8		1					
1998	278				41		101	14	6	17		1					
1999	183				46		145	1	5	10							
2000	161				37		408	3	9	12							
2001	173				43		549	3	9	13							
2002 <sup>c</sup>	153	159	0		146		429	3	10	15							
2003	326	299	2		96		480	10	16	51		0	0				
2004	167	239			65		292	8	6	37							
2005	164	241			108		511	11	16	28		0	0				
2006	82	632			185		52	3	17	41							0
2007	408	490	0		157				41	61		0	0				
2008	450	339			159		29	0	45	69							0
2009	581	359	0		120		42	0	43	79		0					
2010	345	295	1		78		93	8	22	61	1	0					
2011	291	233			115		37	1	33	36	0	0		1	0	0	
2012	477	148	0		89	0	62	2	23	43	1	0		2	1	0	
2013	382	196	0		47	0	45	5	29	33	0	0		1			

<sup>c</sup> Danish catches in 2002 in SW Baltic were separated according to Subdivisions 24 and 25.

**Table 8.3.15.3**

Plaice in Subdivisions 24–32 (Baltic Sea. Total landings (tonnes) by ICES subdivision and country (in tonnes).

Year	Total by SD						Total SD 24–29
	24 <sup>a</sup>	25	26	27	28	29	
1970	659						659
1971	423						423
1972	370						370
1973	323	174	30				527
1974	198	114	86				398
1975	297	158	142				597
1976	307	164	76				547
1977	300	265	26				591
1978	1 914	633	290				2 837
1979	3 751	555	224				4 530
1980	2 073	383	53				2 509
1981	1 138	239	27				1 404
1982	464	49	64	7	1		585
1983	456	84	12	24	2		578
1984	199	109		4	1		313
1985	1 429	123	49	5	1		1 607
1986	1 446	178	59	9	1		1 693
1987	1 020	198	5	12	1		1 236
1988	389	16	1	9	1		416
1989	188	15		6	1		210
1990	152	6					158
1991	126	4	1	2			133
1992	81	7		1			89
1993	76	4					80
1994	163	50	4				217
1995	447	243	3		1		694
1996	368	206	15	1			590
1997	264	316	3	1			584
1998	325	118	14	1			458
1999	234	155	1				390
2000	207	420	3				630
2001	225	562	3				790
2002 <sup>b</sup>	309	603	3				915
2003	438	830	13	0	0		1 281
2004	289	781	11	0	0		1 081
2005	289	781	11	0	0		1 081
2006	284	725	3				1 012
2007	617	550	0	0	0		1 167
2008	665	437	0		0		1 102
2009	744	481	0	0			1 226
2010	473	420	9	0			903
2011	437	309	1	0			748
2012	609	236	3	0			848
2013	459	274	5	0			738

<sup>a</sup>For the years 1970–1981 and 1990 catches of Subdivisions 25–28 are included in Subdivision 24.<sup>b</sup>Danish catches in 2002 in SW Baltic were separated according to Subdivisions 24 and 25



**Table 8.3.15.4**

Plaice in Subdivisions 24–32 (Baltic Sea). Cpue (number  $\times$  hr<sup>-1</sup>; weighted average per depth stratum area) of fish equal to or larger than 20 cm from the Baltic International Trawl Survey (BITS–Q1 and Q4) in Subdivisions 24–28, from 1st quarter, 4th quarter, and combined (data from ICES DATRAS database).

<b>Stock size index (number <math>\times</math> hour<sup>-1</sup>)</b>			
<b>Year</b>	<b>First quarter</b>	<b>Fourth quarter</b>	<b>combined</b>
2001	1.80	8.88	5.34
2002	10.50	21.31	15.90
2003	7.93	5.59	6.76
2004	2.50	10.08	6.29
2005	2.32	17.78	10.05
2006	8.25	16.28	12.27
2007	8.64	10.27	9.45
2008	7.00	15.83	11.41
2009	8.44	19.68	14.06
2010	8.13	33.90	21.01
2011	11.74	37.31	24.52
2012	11.49	39.42	25.46
2013	22.30	40.5	31.40